



# UNITED STATES PATENT AND TRADEMARK OFFICE

col

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,270	10/05/2001	Donald C. D. Chang	PD-89418A	6188

20991 7590 06/28/2005

THE DIRECTV GROUP INC  
PATENT DOCKET ADMINISTRATION RE/R11/A109  
P O BOX 956  
EL SEGUNDO, CA 90245-0956

EXAMINER

WONG, LINDA

ART UNIT PAPER NUMBER

2634

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/973,270

Applicant(s)

CHANG ET AL.

Examiner

Linda Wong

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-18 is/are rejected.
- 7) ☒ Claim(s) 5 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### Response to Arguments

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-4,6-7,9,11,12-15,16-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art admitted by applicant and Kroeger et al (US Patent No.: 5523726).

a. **Claim 1**, as cited in the previous office action,

- i. Regarding **claim 1**, lines 1-9, the prior art (Fig. 2A) discloses a mobile satellite payload having a phase array antenna (label 26), receive radiating elements, a plurality of low noise amplifiers (LNAs) (label 28) and a plurality of analog-to-digital (A/D) converters (label 32). The mobile satellite comprises of received signals formed from communications signals with receive radiating elements, amplified received signals within the plurality of LNAs (label 28), and transforming the received signals into digital baseband signals within the plurality of A/D converters (label 32). (Fig. 2A)

In view of the new amended **claim 1**, although the admitted prior art does not disclose downconverting of the amplified received signals to a digital baseband signal, Kroeger et al discloses a communication system receiving signals, amplifying the signals (Fig. 1, label 22) and providing an analog-to-digital

Art Unit: 2634

convert after downconverting the amplified signals. (Fig. 1, labels 22A and 28)

It would be obvious to one skilled in the art to downconvert an amplified signal to provide reliable results from modulating digital signals onto a carrier frequency. (Col. 2, lines 24-29 and lines 38-42)

- b. **Claims 2-4,6-7,9,11,12-15** are rejected as recited in the previous office action.
- i. Regarding **claim 2**, lines 1-3, the admitted prior art (Fig. 2A) discloses A/D converters (label 32) that filters (label 48) the received signals. (Fig. 2A)
  - ii. Regarding **claim 3**, lines 1-2, the admitted prior art predetermines the sampling rate using the Nyquist theorem. (page 7, paragraph 0034)
  - iii. Regarding **claim 4**, lines 1-3, it is well known to one skilled in the art and the admitted prior art discloses the method of using Nyquist to maintain or prevent aliasing while sampling within the A/D converters. (paragraph 0034)
  - iv. Regarding **claim 6**, although the prior art included does not teach the frequency bands SHF, KU, EHF, L-band, S-band and C-band, it is obvious to one skilled in the art to know the bands cited are available to choose for frequency allocation depending on what the system will be used to perform. It would be a matter of design choice to transform received signals within these frequencies.
- Claim 6**, As cited in the new amended claim 6, the rejection as previously stated still holds for frequency bands above C-band.
- v. **Claim 7** inherits all the limitations of claim 1.
  - vi. Regarding **Claim 9**, the admitted prior art discloses a phase array antenna (label 22), a plurality of low noise amplifiers (label 28), and a plurality of analog-to-digital converters (label 32). (Fig. 2A)

**Claim 9**, In view of the amended claim 9, as explained in claim 1, Kroeger et al discloses downconverting the amplified received signals before performing an

analog-to-digital conversion. It would be obvious to one skilled in the art to downconvert an amplified signal to provide reliable results from modulating digital signals onto a carrier frequency. (Col. 2, lines 24-29 and lines 38-42)

- vii. Regarding **Claim 11**, the admitted prior art discloses a plurality of A/D converters (label 32) that incorporate the function of a filter (label 48). (Fig. 2A)
- viii. Regarding **claim 12**, although the prior art admitted does not teach that the A/D converters operate with various aperture times, it is obvious to one skilled in the art that with each received signal, a different aperture time would be used to sample such a signal to ensure that no aliasing will occur.
- ix. Regarding **Claim 13**, the admitted prior art discloses a filter within the plurality of A/D converters that can perform a low pass or band pass filtration dependent on the type filtration needed.
- x. Regarding **Claim 14**, the admitted prior art discloses a formula for the sampling rate that changes with the frequency of the received signal. (page 7, paragraph 0035, line 5)
- xi. Regarding **Claim 15**, the prior art discloses LNA coupled to the antenna, and A/D converters coupled to the LNA that transfers the received signal into a digital baseband signal. Although the prior art included does not disclose an antenna, it is inherent that such a system would have an antenna in order to receive the communication signals depicted in Fig. 2A, label 26. (Fig. 2A, labels 28 and 32)

**Claim 15**, In view of the amended claim 15, as explained in claim 1, Kroeger et al discloses downconverting the amplified received signals before performing an analog-to-digital conversion. It would be obvious to one skilled in the art to downconvert an amplified signal to provide reliable results from modulating digital signals onto a carrier frequency. (Col. 2, lines 24-29 and lines 38-42)

- c. **Claim 16** inherits all the limitations of claims 1, 3, and 7. Kroeger et al. and the admitted prior art perform tasks, as recited in the claim, on the received signals in order to convert the signals into digital baseband signals. (Kroeger et al Col. 2, lines 21-29 and Applicant disclosure)
- d. **Claim 17** inherits all the limitations of claim 4.
- e. **Claim 18** inherits all the limitations of claim 3.

***Allowable Subject Matter***

- 2. **Claims 5,19** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Wong whose telephone number is 571-272-6044. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LW

  
**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**